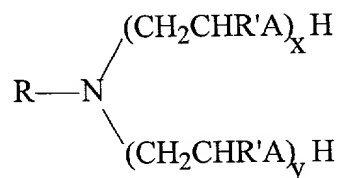


1 **WHAT IS CLAIMED IS:**

2 1. A method of electrically logging a subterranean well, the method comprising:

3 a) drilling the subterranean well with an invert emulsion drilling fluid,
4 wherein said fluid includes: an oleaginous fluid; a non-oleaginous fluid; and an amine
5 surfactant having the structure
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9 wherein R is a C₁₂-C₂₂ aliphatic hydrocarbon; R' is an independently
10 selectable from hydrogen or C₁ to C₃ alkyl; A is NH or O, and 1 ≤ x+y ≤ 3;

11 b) adding acid to the invert emulsion drilling fluid in a sufficient amount to
12 reverse the filtercake solids from being oil-wet to being water-wet; and
13 c) electrically logging said well.
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15 2. The method of claim 1 wherein said oleaginous fluid comprising from 5 to about
16 100% by volume of the oleaginous fluid of a material selected from a group consisting of
17 esters, ethers, acetals, di-alkylcarbonates, hydrocarbons, and combinations thereof.
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19 3. The method of claim 1 wherein said non-oleaginous liquid is an aqueous liquid.
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21 4. The method of claim 3 wherein said aqueous liquid is selected from the group
22 consisting of sea water, a brine containing organic or inorganic dissolved salts, a liquid
23 containing water-miscible organic compounds, and combinations thereof.
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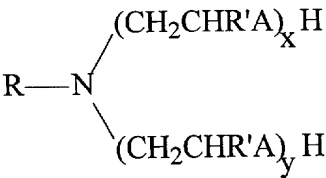
25 5. The method of claim 1 wherein said amine surfactant is selected from
26 diethoxylated tallow amine; diethoxylated soya amine; N-aliphatic-1,3-diaminopropane
27 wherein the aliphatic group is a C₁₂ to C₂₂ hydrocarbon; or combinations thereof.

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6. A method of gravel packing a downhole area of a subterreanean well, said method comprising:

a) forming a mixture of a gravel packing material and an invert emulsion drilling fluid, wherein said fluid includes: an oleaginous fluid; a non-oleaginous fluid; an amine surfactant having the structure



wherein R is a C₁₂-C₂₂ aliphatic hydrocarbon; R' is an independently selectable from hydrogen or C₁ to C₃ alkyl; A is NH or O, and 1 ≤ x+y ≤ 3;

- b) injecting said mixture of gravel packing material and invert emulsion into a subterranean well so as to gravel pack the downhole area ; and
- c) adding acid to said fluid so as to change the oil-wet gravel packing materials into water-wet gravel packing materials and;
- d) washing said well with an aqueous based wash solution.

7. The method of claim 6 wherein said oleaginous fluid comprising from 5 to about 100% by volume of the oleaginous fluid of a material selected from a group consisting of esters, ethers, acetals, di-alkylcarbonates, hydrocarbons, and combinations thereof.

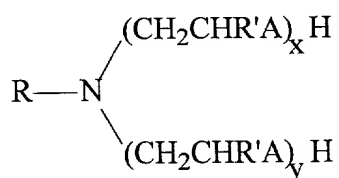
8. The method of claim 6 wherein said non-oleaginous liquid is an aqueous liquid.

9. The method of claim 8 wherein said aqueous liquid is selected from the group consisting of sea water, a brine containing organic or inorganic dissolved salts, a liquid containing water-miscible organic compounds, and combinations thereof.

10. The method of claim 6 wherein said amine surfactant is selected from diethoxylated tallow amine; diethoxylated soya amine; N-aliphatic-1,3-diaminopropane wherein the aliphatic group is a C₁₂ to C₂₂ hydrocarbon; or combinations thereof.

11. A method of injecting drill cuttings into a downhole area of a subterreanean well, said method comprising:

a) collecting the drilling cuttings from a subterreanean wel drilled with an invert emulsion drilling fluid, said invert emulsion drilling fluid includes: an oleaginous fluid; a non-oleaginous fluid; an amine surfactant having the structure



wherein R is a C₁₂-C₂₂ aliphatic hydrocarbon; R' is an independently selectable from hydrogen or C₁ to C₃ alkyl; A is NH or O, and 1 ≤ x+y ≤ 3;

- c) adding acid to said drilling cuttings so as to change the drilling cuttings from being oil wet to being water wet;
- d) grinding and suspending said cuttings in an aqueous based injection fluid; and
- e) injecting said suspension of cuttings in injecting fluid into a disposal zone in a subterranean well.

12. The method of claim 11 wherein said oleaginous fluid comprising from 5 to about 100% by volume of the oleaginous fluid of a material selected from a group consisting of esters, ethers, acetals, di-alkylcarbonates, hydrocarbons, and combinations thereof.

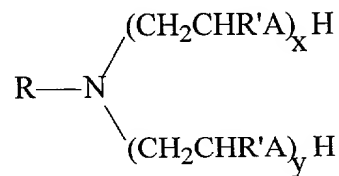
13. The method of claim 11 wherein said non-oleaginous liquid is an aqueous liquid.

14. The method of claim 13 wherein said aqueous liquid is selected from the group consisting of sea water, a brine containing organic or inorganic dissolved salts, a liquid containing water-miscible organic compounds, and combinations thereof.

15. The method of claim 11 wherein said amine surfactant is selected from diethoxylated tallow amine; diethoxylated soya amine; N-aliphatic-1,3-diaminopropane wherein the aliphatic group is a C₁₂ to C₂₂ hydrocarbon; or combinations thereof.

16. A method of fracturing a subterranean formation, the subterranean formation being in fluid communication with the surface via a well, the method comprising:

- a) injecting a fracturing fluid into said well, wherein said fracturing fluid includes: an oleaginous fluid; and an amine surfactant having the structure



wherein R is a C₁₂-C₂₂ aliphatic hydrocarbon; R' is an independently selectable from hydrogen or C₁ to C₃ alkyl; A is NH or O, and 1 ≤ x+y ≤ 3; and oil-wet propanant material;

- b) pressurizing said fluid so as to cause the subterranean formation to fracture and allow the propanant materials to enter said crack;

- c) adding acid to said fluid so as to change the oil-wet propanant materials into water-wet propanant materials and;

- d) washing said well with an aqueous based wash solution.

- 1 17. The method of claim 16 wherein said oleaginous fluid comprising from 5 to about
2 100% by volume of the oleaginous fluid of a material selected from a group consisting of
3 esters, ethers, acetals, di-alkylcarbonates, hydrocarbons, and combinations thereof.
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- 5 18. The method of claim 16 wherein the fracturing fluid further includes a non-
6 oleaginous liquid.
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- 8 19. The method of claim 18 wherein said non-oleaginous liquid is selected from the
9 group consisting of sea water, a brine containing organic or inorganic dissolved salts, a
10 liquid containing water-miscible organic compounds, and combinations thereof.
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- 12 20. The method of claim 16 wherein said amine surfactant is selected from
13 diethoxylated tallow amine; diethoxylated soya amine; N-aliphatic-1,3-diaminopropane
14 wherein the aliphatic group is a C₁₂ to C₂₂ hydrocarbon; or combinations thereof.
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- 16 21. The method of claim 16 wherein the propan material is selected from the group
17 consisting of quartz gravel, sand, glass beads, ceramic pellets, and combinations thereof.
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